Paper No. 33

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte LANNY D. SCHMIDT
and
MARYLIN HUFF

Appeal No. 1998-1567
Application No. 08/636,816

ON BRIEF

Before WARREN, OWENS, and LIEBERMAN, Administrative Patent Judges.

LIEBERMAN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 from the decision of the examiner refusing to allow claims 1, 3 and 9 through 20, which are all the claims pending in this case.[1]

THE INVENTION

The invention is directed to a process for the production of a mono-olefin from

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[1]It is stated in the Brief, page 2 that, "THE APPEAL OF CLAIM 2 IS HEREBY WITHDRAWN." Accordingly, we vacate the appeal of claim 2.

gaseous hydrocarbons utilizing a platinum catalyst. The catalyst consists essentially of 2 to 90% by weight platinum on a ceramic monolith consisting of specific components. Additional limitations are forth in the following illustrative claim.

THE CLAIM

Claim 1 is illustrative of appellants' invention and is reproduced below:

> 1. A process for the production of a mono-olefin from a gaseous paraffinic hydrocarbon having at least two carbon atoms or mixtures thereof comprising reacting said hydrocarbons and molecular oxygen in the presence of a platinum catalyst consisting essentially of 2 to 90 wt. % platinum on a ceramic foam monolith consisting of the oxides of Zr, Ca, Mg, Hf, Ti or mixtures thereof.

THE REFERENCES OF RECORD

As evidence of obviousness, the examiner relies upon the following references:

Hazbun	4,827,071	May 2, 1989
Warren	5,073,657	Dec. 17, 1991
Font Freide et al. (Font Freide)	5,105,052	Apr. 14, 1992

THE REJECTION

Claims 1, 3 and 9 through 20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Font Freide in view of Warren or Hazbun.

OPINION

We have carefully considered all of the arguments advanced by the appellants and the examiner, and agree with the appellants that the rejection of claims 1, 3 and 9

through 20 under 35 U.S.C. § 103(a) is not well founded. Accordingly, we reverse this rejection.

The Rejection under § 103(a)

It is the position of the examiner that although, "the claims on appeal contain higher pt [sic, Pt] amounts than those in Font Fredie [sic, Freide], given that the same components are disclosed in the reference the optimization of the metal loadings so as to obtain the best dehydrogenation results is not believed to define a patentable distinction." See Answer, page 5. We disagree.

We find that Font Freide is directed to a process for the production of, "mono-olefins by the catalytic oxidative dehydrogenation of gaseous paraffinic hydrocarbons having 2 or more carbon atoms." See column 1, lines 7-12. We find that the process is performed in the presence of oxygen containing gas such as oxygen or air. See column 2, lines 10-11. We find that a catalyst capable of supporting combustion beyond the normal fuel limit of flammability is employed. See column 2, lines 29-30. A range of support materials for the catalyst includes cordierite, mullite with alumina being the preferred support. See column 2, lines 29-50. Furthermore, the support material is preferably in the form of a monolith as required by the claimed subject matter. See column 2, lines 35-39.

The catalyst of Font Freide however, differs from that of the claimed subject matter. The catalyst may be prepared by impregnating the support with a solution of a soluble compound of platinum. See column 2, lines 48-50. The patentee discloses that by using a simple soaking method it is difficult to achieve greater than 0.15% metal

loadings. See column 2, lines 54-56. Although Font Freide discloses that in certain circumstances "higher loadings may be desirable," and that they, "may be achieved by wash coating the monolith prior to immersion in the solution," column 2, lines 54-63, there is no specific disclosure as to the amount of platinum catalyst that may be deposited on the ceramic monolith substrate.

We further find that Example 1 discloses a platinum loading of 0.1% by weight, and Example 3 discloses a loading factor of 0.5% by weight for Pt/Pd. Example 3 however, fails to disclose the amount of either Pt or Pd present in the catalyst and in any event the catalyst composition does not fall within the scope of the claimed subject matter of claim 1 which recites, "a platinum catalyst consisting essentially of 2 to 90 wt. % platinum." We accordingly conclude that the amount of platinum disclosed by Font Freide is not within the scope of the claimed subject matter.

Based upon the above findings and analysis, we further determine that there is no suggestion or motivation to increase the amount of platinum loaded onto a monolithic ceramic substrate by a factor of almost 15 times in order to achieve the minimum amount of the catalyst required by the claimed subject matter. In this respect we agree with appellants' position that optimization of a result oriented variable is generally within a range disclosed by the reference of record. See Brief, page 5.

Furthermore, we disagree with the conclusion of the examiner that the references of Warren and Hazbun may be combined with the primary references of record. We find

that Warren is directed to the oxidative coupling of lower alkanes to produce heavier hydrocarbons in contrast with the dehydrogenation catalytic reaction of Font Freide. See column 4, lines 46-50. Furthermore, the large variety of oxidative coupling catalysts, supports and shapes disclosed at column 6, line 48 to column 7, line 33 contain an oxidative coupling catalyst, Table I, outside the scope of the claimed subject matter and directed to a different and distinct catalytic reaction. Accordingly, contrary to the examiner's position, we conclude that there is no reason to equate the catalysts of Warren with those of the primary reference.

Hazbun is even further removed from the catalyst of the primary reference in that it is directed to conducting catalytic ceramic membranes. See column 1, lines 10-12. Hazbun further discloses two layer conducting catalytic ceramic membranes and the use of these membranes in hydrocarbon conversion processes. See column 2, lines 57-65. Moreover, the product of the catalytic reaction is in one wherein hydrocarbons are coupled to form olefins and diolefins and ethylene and propylene are oxidized to form ethylene oxide, propylene oxide, aldehydes, acids and anhydrides and other organic materials contrary to the disclosure of Font Freide directed to a catalytic dehydrogenation reaction. Accordingly, we conclude that there is no reason to equate the catalysts of Hazbun with those of the primary reference.

Finally, we recognize the protest submitted on October 29, 1997, Paper No. 25. We note however, that there is no rejection before us based on the references submitted

by the protester. Furthermore, for the reasons discussed supra, it is evident that no further rejection would be appropriate.

DECISION

The rejection of claims 1, 3 and 9 through 20 under 35 U.S.C. § 103(a) as being unpatentable over Font Freide in view of Warren or Hazbun is reversed.

The decision of the examiner is reversed.

REVERSED

CHARLES F. WARREN Administrative Patent Judge	)
TERRY J. OWENS Administrative Patent Judge	) BOARD OF PATENT APPEALS AND INTERFERENCES
PAUL LIEBERMAN Administrative Patent Judge	)

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